Air Quality Field Guide For Agricultural Operations

TERRY R. CLASON
LOUISIANA STATE OFFICE
ALEXANDRIA, LOUISIANA

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Air Quality Field Guide For Agricultural Operations

Introduction

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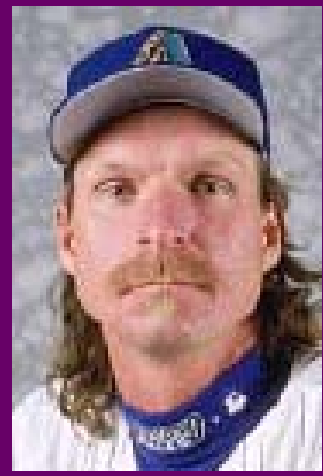

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Reasons For Air Quality Guidance

Regulatory agencies have little experience with agricultural operations.

Chief Knight has established a comprehensive policy on atmospheric resource management.

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Points Of Discussion

1. How the regulatory process functions & the potential impact on agriculture.

2. Implications of National Policy on field office activities.

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Air Pollution

The presence in the outdoor atmosphere of any one or more substances or pollutants in quantities which are or may be harmful or injurious to human health or welfare, animal or plant life, or unreasonably interfere with the enjoyment of life or property, including outdoor recreation. (Cooper and Alley, 1990)

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Agricultural Operations

Practices associated with farming and production agriculture. This includes soil tilling, planting and harvesting (field operations); grain elevators; feed mills; cotton gins; oil mills; CAFOs; agricultural burning; emissions from off-road engines.

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Air Pollution Regulatory Process

APRP

1. EPA (NAPRA) - Formulate

2. STATES (SAPRA) - Implement

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Clean Air Act (CAA) - 1963

* Motor Vehicle Air Pollution Control Act - 1965
* Air Quality Act - 1967
* CAA Amended - 1970
* CAA Amended - 1977
* CAA Amended - 1990

Comprehensive Environmental Response Compensation & Liability Act (CERCLA) - 1980

Superfund Amendments and Reauthorization Act (SARA) - 1986

*Title II - Emergency Planning and Community Right-to-Know Act (EPCRA)

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The most dangerous things in legislation is to enact a general law for a nation under strong excitement.

If the mental eye be directed to a single object, it is not easy for the legislator, intent only on that object, to look around him and to perceive and guard against the serious mischief with which his measure will burn.

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EPA responsibilities

* Interpret intent of Congress
* Formulate rules and regulations
* Delegate authority to States
* Provide oversite
    - withhold federal highway funds
    - implement 2/1 offsets
    - implement Title V authority
* Define NSPS, NESHAP, MACT & NAAQS
* Designate non-attainment areas
* Approve State Implementation Plans (SIP)

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SAPRA (STATE) responsibilities

* Formulate rules and regulations
* Prepare State Implementation Plans (SIP)
* Permit facilities – Preconstruction & Title V
* Enforce permitting

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Public Protection

Health Effects Standards

Title I CAA

Critical Air Pollutants

*Sulfur dioxide
*Carbon monoxide
*Lead
*Nitrogen dioxide
*Ozone (VOC or ROG)
*Particulate matter $PM_{10}/PM_{2.5}$

New Source Performance Standards (NSPS)

*Hydrogen sulfide

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Toxic Air Pollutants
(TAPS OR HAPS)

*189 compounds known to cause cancer or other serious health effects.

Title III CAA
National Emission Standards for Hazardous Air Pollutants (NESHAPS)

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Air Pollutants

National Ambient Air Quality Standards (NAAQS)

The maximum concentration that has been established for **criteria pollutants** in an ambient environment.

NAAQS Expressed In Terms Of

Flux = emissions per unit area

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NAAQS Values

*Nitrogen dioxide

Annual arithmetic mean - 100 ug/m^3

*Ozone (VOC or ROG)

8 hour average - 157 ug/m^3

*Particulate matter PM_{10}

Annual arithmetic mean - 50 ug/m^3

24 hour average - 150 ug/m^3

*Particulate matter $PM_{2.5}$

Annual arithmetic mean - 15 ug/m^3

24 hour average - 65 ug/m^3

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Point Source

Emissions are collected and passed through a defined point to the environment.

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Low-level Point Sources

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Ground-level Area Sources

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Fugitive Emissions

Do not reasonably pass through a stack, chimney, vent or other functionally-equivalent opening.

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Potential to Emit

The maximum capacity of a stationary source to emit a pollutant under its physical and operational design.

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Water Quality Analogy

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Title V - CAAA 1990
Federal Operating Permit (FOP)
Funding For Air Pollution Regulation

Major Source

Any facility that emits more than 100 tons/year of a criteria pollutant, 10 tons/year of a toxic or 25 tons/year of any combination of toxics in an attainment area.

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Major Source Classification

1. Any facility that emits or has the potential to emit 100 tons/year of a criteria pollutant.

2. Facility subject of National Emission Standards for Hazardous Air Pollutants (NESHAPS).

3. The source is subject to New Source Performance Standards (NSPA).

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NSPS Classification

1. Terminal elevators with storage capacity > 2.5 million bushels.

2. Any elevator with storage capacity of 1.0 million bushels

3. Agriculture sources with emission potential of 100 tons/year

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Emission Determination Problem

Agriculture Operations are being evaluated by emission factors (EF) = emissions per production/process unit, which were published by EPA for point sources and fugitive emissions in 1985.

Very little quality data on emissions of air pollutants from agricultural operations & NAPRA pressures SAPRA to respond to SIP in spite of poor data.

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Your Farm Is A Major Source, What Happens?

Federal Operating Permit - Minimum of $25 per ton of potential emission which includes potential source emission and potential fugitive emission. Minimum annual permit cost of $2,500.

Permit violations EPA can bring administrative enforcement action with fines up to $200,000; Minor violations up to $5,000 per day;

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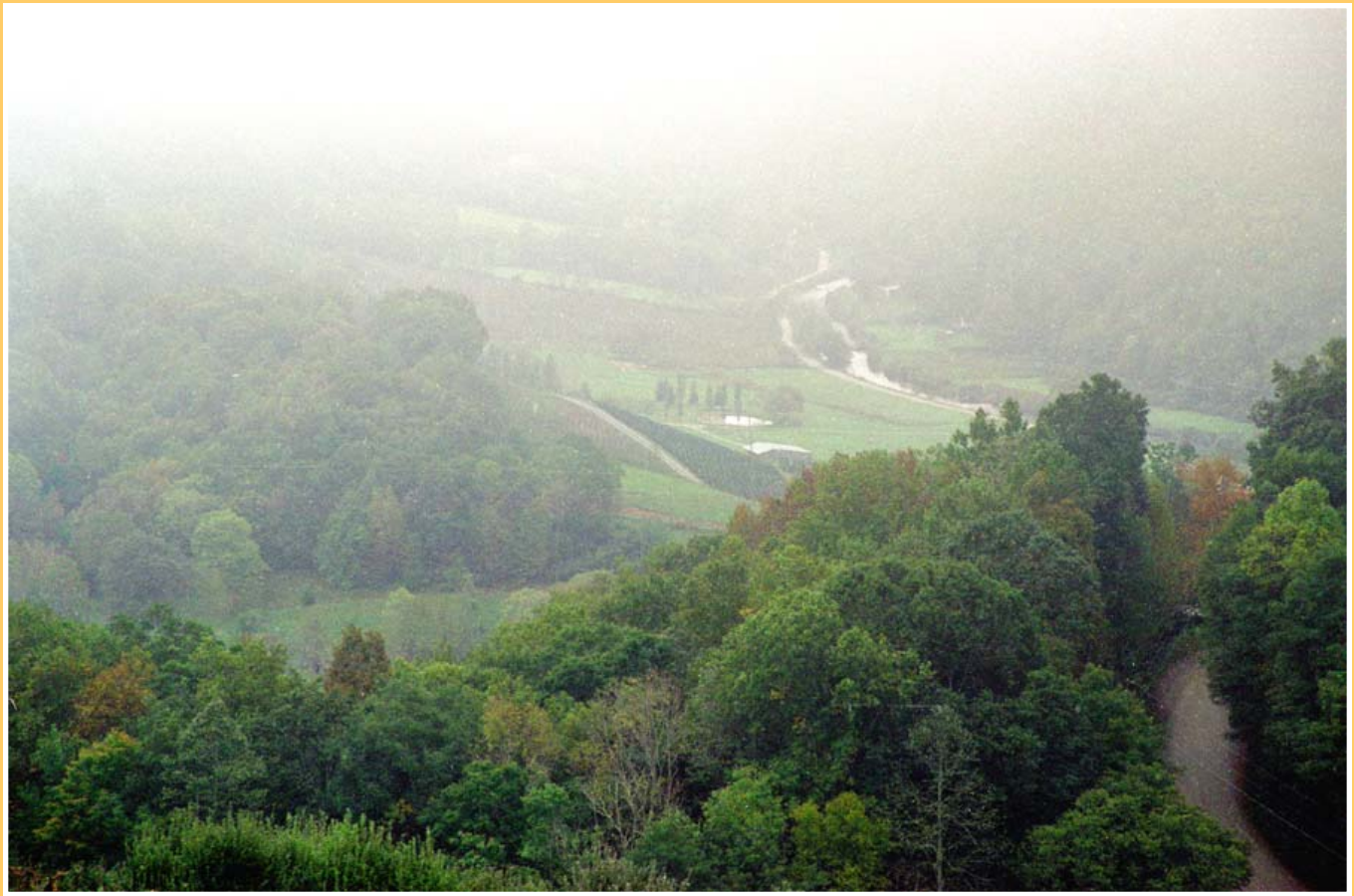
REGIONAL HAZE REGULATIONS
CLASS I FEDERAL AREA



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Nuisance Enforcement

Nuisance / Perception Standards

Greenhouse Gases

*Water vapor
*Carbon dioxide
*Methane
*Nitrous oxide
*Fluorinated compounds

Odors

*Animal Waste VOC
*Ammonia
*Alcohols
*Aldehydes

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National Air Quality Policy

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Air Quality Protection Is The #1 Conservation Concern At NHQ

1. DEVELOPING ATMOSHPERIC RESOURCE MANAGEMENT POLICY FOR THE GENERAL MANUAL.

2. PUBLISHED A NEW CONSERVATION PRACTICE STANDARD TITLED ATMOSPHERIC RESOURCE QUALITY MANAGEMENT (370).

3. REVISED APPROXIMATELY 50 CONSERVATION PRACTICE STANDARDS TO ADDRESS AIR QUALITY PROTECTION.

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The **Natural Resources Conservation Service** provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment.

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INGENUITY AND INTELLIGENCE

INCORPORATE PRACITCE STANDARDS AND AVAILABLE FUNDING;

CREATE INNOVATIVE MANAGEMENT SYSTEMS;

SOLVE SWAPA CONCERNS IN UNISON;

SATISFY HUMAN SCRUTINY.

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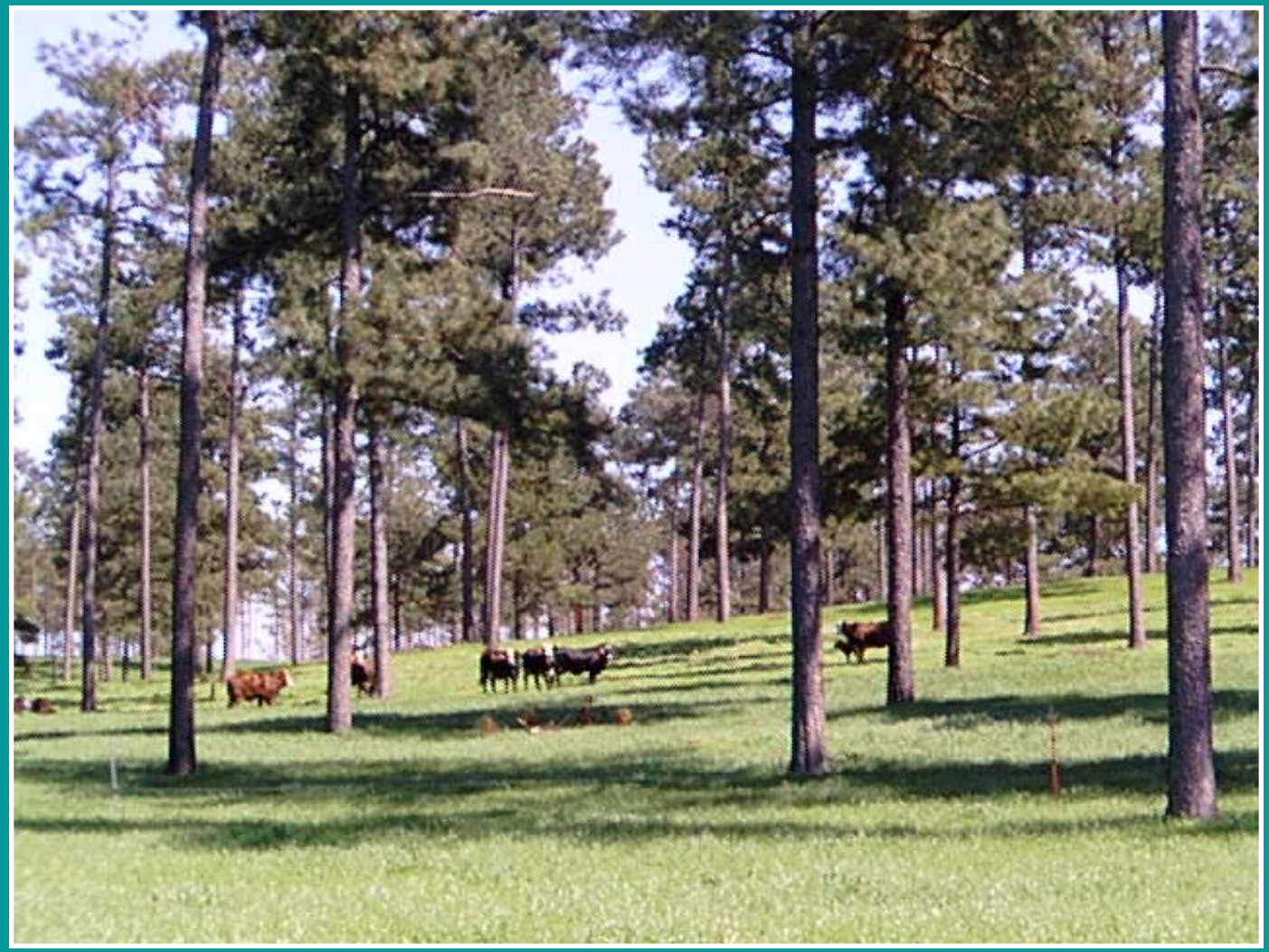

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